

WHAT IS CLAIMED IS:

1. A liquid discharge apparatus provided with: a discharge port for discharging liquid; a liquid flow path communicating with said discharge port having a bubble generating region for generating bubble; a discharge energy generating element for generating thermal energy for generating the bubble in the liquid inside said bubble generating region; and a liquid discharge head facing said discharge energy generating element spaced apart from said discharge energy generating element having a movable member in which an end portion at an upstream side in the flow direction of the liquid inside said liquid flow path is fixed and a down stream end thereof is a free end,

in which ink is discharged from said liquid discharge head and a recording is performed by adhering said liquid on a medium to be recorded,

wherein said liquid discharge apparatus comprises: means for detecting an ink supply state inside said liquid flow path; and

means for controlling or stopping the driving to said discharge energy generating element when a judgment is made that the ink is not normally supplied based on the detection result of the ink supply state inside said liquid flow path.

2. The liquid discharge apparatus according to

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claim 1, wherein said means for detecting said ink supply state is temperature detection means for a temperature rise per unit hour inside the liquid flow path.

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3. The liquid discharge apparatus according to claim 1, further comprising driving signal supply means for supplying a driving signal for allowing the liquid to eject from said liquid discharge head.

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4. The liquid discharge apparatus according to claim 1, further comprising medium to be recorded conveyance means for conveying the medium to be recorded which receives the liquid discharged from said liquid discharge head.

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5. A valve protection method of a liquid discharge head having a heat generating element inside a liquid flow path communicating with a discharge port and a movable plate for directing a bubble growing by a film boiling on said heat generating element to a side of said discharge port,

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wherein an ink supply state inside said liquid flow path is detected and the driving to said heat generating element is controlled or stopped when a judgment is made that the ink is not normally supplied based on a detection result of said ink supply state.

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6. A valve protection method of the liquid discharge head having a heat generating element inside the liquid flow path communicating with the discharge port and a movable plate for directing a bubble growing by a film boiling on said heat generating element to the side of said discharge port,

wherein the temperature rise inside said liquid flow path is detected and, when said temperature rise is more than a predetermined threshold value, a judgment is made that the ink is not in a state of being normally supplied and the driving to said heat generating element is controlled or stopped.

7. A maintenance system of a movable member for a liquid discharge system, comprising:

a discharge port for discharging liquid; a liquid flow path communicating with said discharge port having a bubble generating region for generating the bubble;

a discharge energy generating element for generating thermal energy for generating the bubble in the liquid inside said bubble generating region; and

a liquid discharge head facing said discharge energy generating element spaced apart from said discharge energy generating element having a movable member in which an end portion at an upstream side in the flow direction of the liquid inside said liquid flow path is fixed and a down stream end thereof is a

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free end, in which by using a liquid supply portion supplying the liquid to said liquid discharge head, liquid is discharged,

wherein said maintenance system of said movable member for the liquid discharge system, comprises means for prohibiting or controlling the displacement of said movable member based on a liquid supply failure condition in either of a liquid residual state inside said liquid discharge head or liquid supply state to said liquid discharge head from said liquid supply portion.

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